

Medical education

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Brasileiro Filho G. Medical education [editorial]. *Autopsy Case Rep* [Internet]. 2013; 3(4): 1-3. <http://dx.doi.org/10.4322/acr.2013.032>

Over the years, producing good physicians has been a huge challenge worldwide. Over the last two decades, this issue has gained notorious interest in Brazil, due to the uncontrolled expansion of medical schools, many of which are unable to adequately prepare students for professional practice.

In any community, good healthcare professionals are essential to promote health, prevent illness, and cure or rehabilitate patients. People do not easily tolerate failures or errors in medical practice, so it is understandable that society continuously demands excellent skills and competence among physicians. In this context, the irreplaceable role of qualified medical schools emerges.

Medical education, which is a continuous process, comprises three stages: undergraduation, post-graduation, and continuous education. The first two stages have an established duration, while the latter, by definition, is endless. Undergraduation and post-graduation, as in any area of teaching and learning, are based on the combination of four essential elements: pedagogical projects, physical structures, teachers, and students. It is vital that these four components are present simultaneously and work together. Well-conceived educational projects, adequate physical infrastructure, and good teachers are not enough; one cannot expect competent professionals if the students are not minimally qualified to assimilate the theoretical knowledge and practical skills required. Therefore, one of our major contemporary challenges is to ameliorate the training of students during their elementary and secondary education to improve the

quality of medical education in the future. Without well-prepared students, higher education cannot achieve its goal. This has indeed been a justified concern.

One of the most important requirements in every professional training process is the acquisition of a competence set (knowledge, skills, and attitudes), which is essential for the professional to do their job properly. In medicine, many general and specific competences are required. Therefore, the educational project, the laboratory infrastructure, the health facilities, and the teachers should be well articulated to enable the acquisition of these competencies. Besides the essential technical and scientific skills, it is still expected that physicians be prepared to practice with humanism, ethics, and professionalism.¹

The knowledge that doctors need to acquire is notoriously enormous.² Although they are necessary for good training, biological components alone are not enough to prepare competent professionals. Reasonable training in philosophy, anthropology, sociology, literature, and other content of the social sciences is absolutely essential for future doctors to understand the insertion of the person in their families and communities. Neglecting the fact that individuals continuously interact with and take part in the social environment is a serious mistake that should not be made in good medical schools.

Much has been debated about the objectives, content, and methodology of medical training. Although it is possible to develop good professionals by different ways of teaching and learning, some principles are adopted worldwide.

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A solid scientific basis on the origin, development, and evolution of diseases is absolutely essential to rationally guide the prophylactic, therapeutic, and diagnostic procedures. Therefore, the basic principles of structure and function of cells, tissues, organs, and systems, are the firmest pillar on which medical training stands. Understanding how different internal and external injuries interact with individual defense and adaptation mechanisms in the process of illness development is essential to intervention or treatment. Due to the extraordinary and rapid advances of knowledge in health sciences during the last few decades, many diseases can now be faced with a reasonable chance of treatment success, which has resulted in a tremendous increase in expectancy and quality of life for many people, who, even in the recent past, would have died prematurely or lived in conditions of great suffering. The gains brought by these conquests are well known and undeniable.

Medical education can benefit from scientific progress in many ways. On one side, technically qualified teachers with a reasonable scientific background act more effectively with their patients and communities; on the other, they can induce scientific thinking in their students and encourage them to adopt scientific attitudes. Although many people consider research to be something done only in sophisticated laboratories and with animal experiments, scientific activities can be undertaken in any medical activity. As is well known, considerable knowledge progress can be achieved solely based on meticulous clinical observations. Thus, medical schools need to continually stimulate their students in their curiosity and desire to explore the natural environment, in which we, as human beings, are all involved. Therefore, it is expected that teachers have, beyond the competencies related to their tasks, scientific attitudes in daily and sometimes trivial situations, so the students can realize the importance of putting the scientific way of thinking into practice.

The challenges imposed on the training process, and consequently for the medical schools, are great. One of them involves the necessity of counting on qualified, dedicated, and numerous teaching staff. By the way, this has been a big challenge for most medical faculties, as indicated by the few available evaluations of medical courses. Although well trained in their professional practice areas, the majority of teachers do not have the necessary training to teach.³ Therefore, they ignore and do not apply the basic pedagogical principles,

believing that their technical and scientific knowledge is sufficient to form disciples. Even worse, they almost always seek to replicate with their students the experiences they had when they were students.

There have been several attempts to break with the traditional model of teaching and learning, which is based on the predominant role of the teacher. In this setting, much of the time the student stays as a mere spectator and information receiver, which is not always perceived critically. Another relevant issue is the correct appropriation of scientific progress on the complex learning process.⁴ Concerned with this reality, many schools around the world, including Brazil, adopted the student-centered teaching method in which the student becomes responsible by his learning process. In this setting, the method called "problem-based learning" (PBL) was well accepted in this country and is now adopted in many Brazilian medical schools.

In Brazil, medical education is heterogeneous in several aspects. Besides the asymmetric geographical distribution, which in a certain way reflects the socioeconomic conditions and uneven development in the vast Brazilian territory, the quality of medical education varies greatly among different institutions. It is well known that the uncontrolled expansion of medical schools in the last 20 years has widely contributed to this reality. Without effective conditions to evaluate and monitor medical faculties, the Brazilian State failed to regulate the national system. Despite strong evidence of the inability to prepare good doctors, due to varied shortages many medical schools continue to graduate thousands of doctors every year without the required and desired qualifications. From what is expected regarding quality, many schools could not have been authorized to function, while several others should have been closed! In this context, the pivotal role of evaluations of institutions and courses emerges. Well-planned and carefully conducted periodic assessments represent a strong guarantee for minimum training quality. An emblematic example is the evaluation of post-graduation programs. Based on well-defined strategy, and counting on experienced evaluators, post-graduation courses in Brazil are an example of uncontested achievement. The success is such that several other countries have adopted the Brazilian model. Apart from providing a strong stimulus for better improvement, this assessment system does not allow unqualified courses to go further and form masters or doctors without minimum conditions. If a similar evaluation system had been applied in

medical undergraduate courses, there is no doubt that the Brazilian medical training system would be much better than it is today.

Another important principle is that the teaching and learning process in medicine should be essentially practical, be developed in teaching laboratories, and above all, be in the different places where doctors work. In other words, learning the profession takes place mostly in conjunction with the student, the teacher, and the patient.

For good medical practice, alongside the many activities in out-patients' clinics, health units, emergency services, and hospitals where these three participants take part, the important role of continuing education stands out. With the rapid technical and scientific progress nowadays, it is absolutely essential that all doctors keep reasonably up to date with the continued advances in the medical field. With the current facility to get technical and scientific information generated throughout the world, it becomes easier to track the daily advances and adopt innovative and more effective practices.

Among the several ways to keep professionally updated, especially in terms of diagnosis and treatment, the physician can count on clinicopathological conferences, in which clinical studies are correlated with the morphological findings obtained from biopsies or autopsies.⁵ As recognized worldwide, these conferences are one of the most effective ways to continue medical education.

In fact, medicine became truly scientific when our ancestors had the curiosity and interest to know what went on in the cells, tissues, organs, and systems of people when they got sick and died. Anatomical findings and pathophysiological disorders produced by lesions give the basis for understanding signs and symptoms and to achieve a clinical diagnosis.

In this particular issue, the **Autopsy & Case Reports** journal has a singular role in

contributing to the dissemination of good quality scientific information, and is a source of ongoing knowledge for both medical students and medical professionals. The editorial profile of **Autopsy & Case Reports** is based on the description of clinical cases with autopsy findings, representing a huge potential to help medical learning. Therefore, it is of paramount importance that this periodical becomes widespread and acts as a permanent source of updated information, which is just as useful and valuable for future doctors as for those who are already in the profession. This is another good reason to recognize its important educational role, which, besides filling a gap in Brazilian medical literature, represents a real and valuable instrument for training. At the same time, it is necessary that the academic community consider this journal as an effective vehicle for disseminating its anatomoclinical studies, favoring the consolidation and continued growth of the journal. In my opinion, the success of the journal will largely contribute to the improvement of medical education not only in Brazil but also around the world.

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